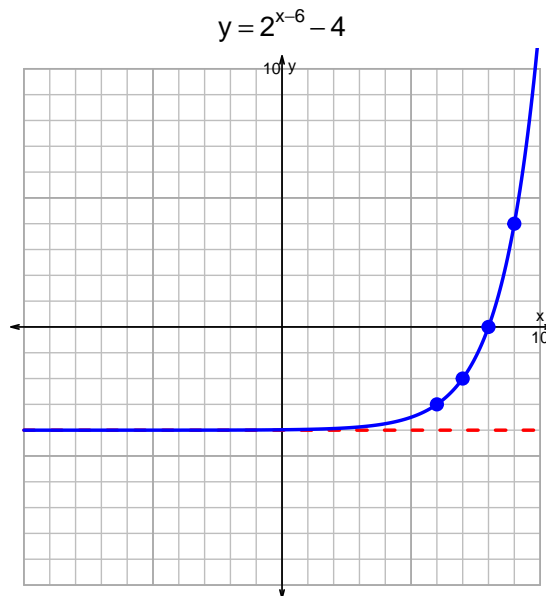
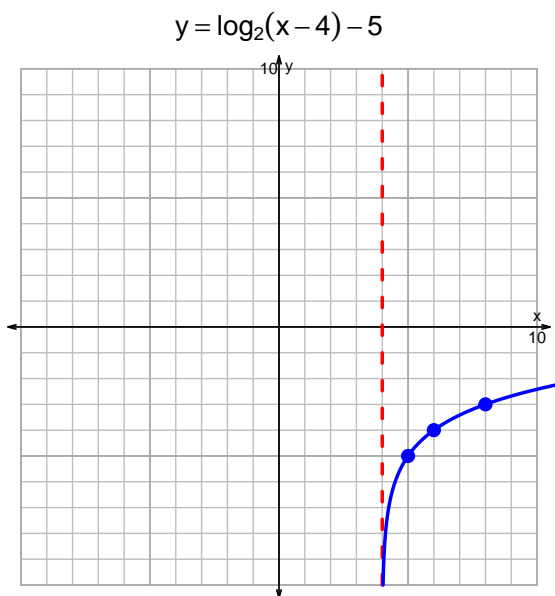


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v146)

1. Graph $y = \log_2(x - 4) - 5$ and $y = 2^{x-6} - 4$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-17 = \left(\frac{-3}{7}\right) \cdot 10^{4t/5}$$

Divide both sides by $\frac{-3}{7}$.

$$\frac{17 \cdot 7}{3} = 10^{4t/5}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{17 \cdot 7}{3} \right) = \frac{4t}{5}$$

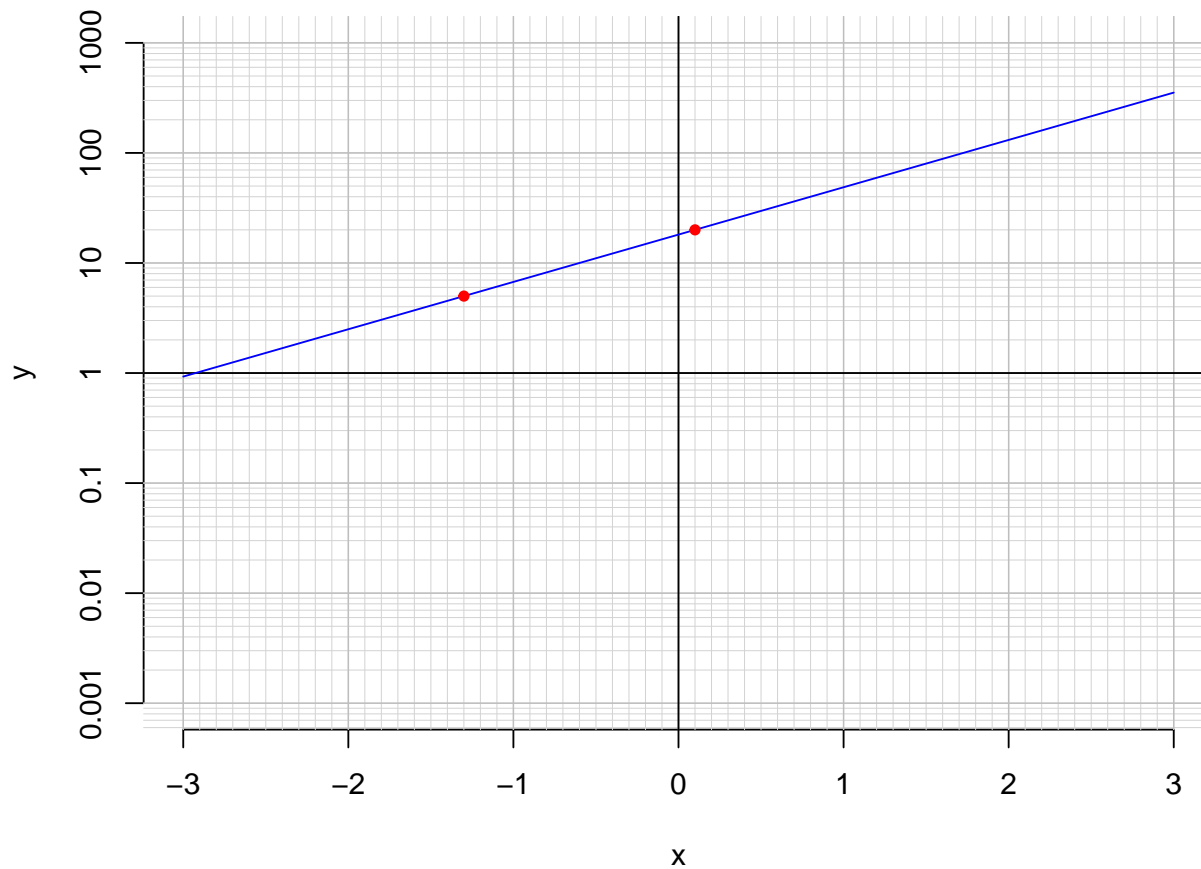
Divide both sides by $\frac{4}{5}$.

$$\frac{5}{4} \cdot \log_{10} \left(\frac{17 \cdot 7}{3} \right) = t$$

Switch sides.

$$t = \frac{5}{4} \cdot \log_{10} \left(\frac{17 \cdot 7}{3} \right)$$

3. An exponential function $f(x) = 18.1 \cdot e^{0.99x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-1.3)$.

$$f(-1.3) = 5$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{0.99} \cdot \ln\left(\frac{x}{18.1}\right)$$

- c. Using the plot above, evaluate $f^{-1}(20)$.

$$f^{-1}(20) = 0.1$$